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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,293	07/20/2005	Michael Ludensky	05408/100J111-US2	8281
7278	7590	05/01/2007		
DARBY & DARBY P.C. P. O. BOX 5257 NEW YORK, NY 10150-5257			EXAMINER HRUSKOCI, PETER A	
			ART UNIT 1724	PAPER NUMBER
			MAIL DATE 05/01/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/540,293

**Applicant(s)**

LUDENSKY ET AL.

**Examiner**

Peter A. Hruskoci

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2007 and 12 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

Claim 22 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 22 "ballast water system" lacks clear antecedent basis in the specification as originally filed, and appears to be drawn to new matter. It is submitted that Exhibit 1 is considered insufficient to provide basis for the term "ballast water system". It is noted that page 1 lines 20-21 of the specification would provide sufficient basis for removing biofilm from surfaces of ship bottoms.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 9-13, 16, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hight et al. 5,662,940 in view of Macchiarolo et al. 4,297,224. Hight et al. disclose (see col. 2 line 59 through col. 3 line 42, col. 9 line 30 through col. 11 line 38, and col. 30 lines 33-64) a method of adding chlorinated hydantoins to an aqueous medium substantially as claimed. The claims differ from Hight et al. by reciting that the method disintegrates or removes biofilm, flocculent bulked sludge, or bulked biologically active sludge in the aqueous medium. It is submitted that the control of the microbial deposits or biofouling in Hight et al. would appear to include the disintegration of biofilm and bulked biologically active sludge as in the instant method. Macchiarolo et al. disclose (see col. 5 line 37 through col. 7 line 52) that it is known in

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the art to utilize chlorinated hydantoins to remove microorganism growth and biofilm from surfaces of a water system. It would appear that the method of Macchiarolo et al. would also include the disintegration of biofilm and sludge as in the instant method. It would have been obvious to one skilled in the art to modify the method of Hight et al. by disintegrating or removing the recited biofilm and sludge in view of the teachings of Macchiarolo et al., to aid in preventing biofouling on surfaces in contact with the aqueous medium. The specific amount of hydantoin added, would have been an obvious matter of process optimization to one skilled in the art, depending on the specific aqueous medium treated and results desired, absent a sufficient showing of unexpected results.

Claims 7, 8, 14, 15, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hight et al. in view of Macchiarolo et al. as applied above, and further in view of Sweeny 5,565,109. The claims differ from the references as applied above by reciting that the chlorinated hydantoin is formed in situ in the aqueous medium from a chlorine source and an alkylated hydantoin. Sweeny disclose (see col. 1 line 56 through col. 3 line 48) that it is known in the art to form a biocide in situ by adding hypochlorite and dimethylhydantoin to the aqueous medium, to enhance bactericidal efficacy of the hypochlorite. It would have been obvious to one skilled in the art to modify the references as applied above by forming the recited chlorinated hydantoin in situ in the aqueous medium in view of the teachings of Sweeny, to aid in preventing biofouling in the aqueous medium. The specific molar ratio utilized, would have been an obvious matter of process optimization to one skilled in the art, depending on the specific aqueous medium treated and results desired, absent a sufficient showing of unexpected results.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hight et al. in

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view of Macchiarolo et al. as applied above, and further in view of Perlich et al. 6,773,611. The claim differs from the references as applied above by reciting that the aqueous system is a ballast water system. Perlich et al. disclose (see col. 3 line 27 through col. 4 line 56) that it is known in the art to utilize a biocide to treat ballast water, to aid in controlling organisms and biofilm in the water. It would have been obvious to one skilled in the art to modify the references as applied above, by treating an aqueous system including ballast water in view of the teachings of Perlich, to aid in controlling microorganisms and biofilm in the water.

Applicants argue that Hight et al. merely discusses a method of controlling biofouling and microorganisms, by providing a composition containing a hypochlorite donor and a bromide donor, and the claims have been amended to limit the concentration of chlorinated hydantoins to an amount sufficient to disintegrate or remove biofilm or sludge. It is submitted that the bromide ion donor of Hight et al. is not excluded from the instant claims. It is further submitted that Hight et al. appear disclose in col. 3 lines 23-34 that it is known in the art to utilize chlorinated hydantoins to control the population of microorganisms in water, and prevent fouling of heat exchanger surfaces. This control would appear to include disintegrating or removing of at least some of the biofilm associated with the microorganisms. It is further noted that Macchiarolo et al. as applied above disclose that it is known in the art to utilize chlorinated hydantoins to remove microorganism growth and biofilm from surfaces of a water system.

Applicants argue that Hight et al. explicitly teaches away from using halogenated hydantoins because of their alleged disadvantages. It is submitted that 1-bromo-3-chloro-5,5-dimethylhydantoin (BCDMH) used in Examples 1 and 2 in Hight et al. appears to be included in the chlorinated hydantoins recited in claim 1. Furthermore, applicants have not present sufficient

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comparative evidence with Hight et al. to support the above argument.

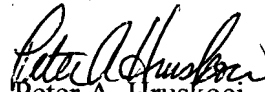
Applicant alleges that there is no expectation in the cited prior art that the in situ reaction of Sweeney would yield a chlorinated hydantoin in the presence of a bromide ion as required by Hight, since one skilled in the art would expect the hypochlorite in the presence of a dimethylhydantoin to react directly with the bromide to form hypobromous acid and/or hypobromite rather than chlorinated hydantoin. It is noted that instant claim 7 recites that the molar ratio of chlorine to alkylated hydantoin can be 100:1. It is further noted that Sweeney discloses that the ratio can be 10:1. It would appear that the use of a stoichiometric excess of hypochlorite or chlorine would form chlorinated hydantoins in the presence of bromide. Furthermore, applicant has not provided sufficient probative evidence to support the above allegation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter A. Hruskoci whose telephone number is (571) 272-1160. The examiner can normally be reached on Monday through Friday from 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Peter A. Hruskoci  
Primary Examiner  
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4/27/07